CONTENTS SHEET NO.

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DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORE LOGS SITE PHOTOGRAPH(S)

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT**

STRUCTURE SUBSURFACE INVESTIGATION

EDGECOMBE

COUNTY _ PROJECT DESCRIPTION REPLACE BRIDGE NO. 320087 OVER SWIFT CREEK ON NC 97 AT -L- STA. 17+00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–5671	1	8

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLI TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-680. THE SUBSIFICACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSUFFACE DATA AND MAY NOT NEGESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE)TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST WETHOD. THE OBSERVED WATER LEVELS OR SOLI MOISTURE CONDITIONS INDICATED IN THE SUBSUFFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLI MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE NUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONS TO BE INCOUNTERED AND THE RETENSION OF TIME FOR ANY REASON RESULTING FOR THE ACTUAL COMPENSATION.

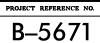
- NOTES: I. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. 2. BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL
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TURNAGE, J. R.
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DRAWN BY FIELDS, W. D.
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SUBMITTED BYALEXANDER, M. J
DATE AUGUST 2019
Prepared in the Office of: Description Consulting Engineers and Scientists 2401 BRENTWOOD ROAD, SUITE 107 RALEIGH, NORTH CAROLINA 27604 NC REGISTERED ENGINEERING FIRM- 6-9869 NC REGISTERED GEOLOGIC FIRM- C-367
SEAL 040231 J. ALEANNIN
— DocuSigned by:
Matthew J. Alexander 11/4/2019
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

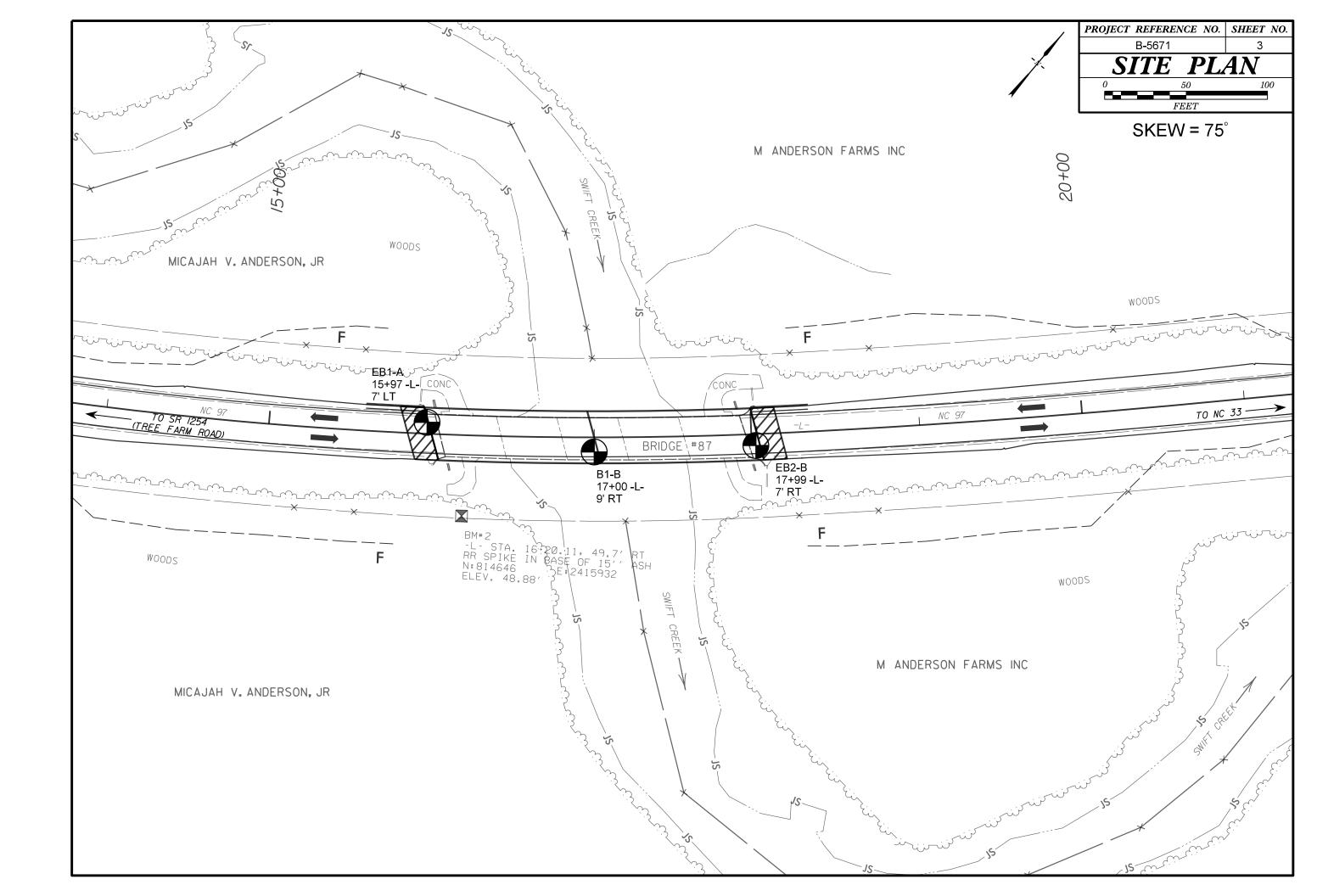
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

•																						
			SOIL C	ESCRI		N				<u> </u>		GRADATION					ROCK DE	SCRIPTION				
		ED UNCONSOLIDA								WELL GRADED - INDICAT								WOULD YIELD SPT REFUSAL IF TESTE				
ACCORD	ING TO THE	TH A CONTINUO	NETRATION TE	ST (AASH	ITO T 200	6, ASTM D	586). SOIL	. CLASSIFIC	CATION	UNIFORMLY GRADED - IN GAP-GRADED - INDICATE				ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK								
		THE AASHTO SY R, TEXTURE, MOI										ARITY OF GRA					WEATHERED ROCK.	ANSITION BETWEEN SOIL AND ROCK				
A	S MINERAL	OGICAL COMPOS	ITION, ANGULAR	RITY, STR	UCTURE, F	PLASTICIT	,ETC. FOF	R EXAMPLE.		THE ANGULARIT		OF SOIL GRAINS IS		ROCK MATERI	ALS ARE TYPICA	LLY DIVIDED AS FOLLO	WS:					
		GRAY. SILTY CLAY.									IGULAR, SUBROUNDE				WEATHERED ROCK (WR)		NON-COASTAL PLA	AIN MATERIAL THAT WOULD YIELD SPT				
GENERAL		GRANULAR MATER			CLAY MAT						MINERALC	OGICAL COMPO	SITION					GRAIN IGNEOUS AND METAMORPHIC RO				
CLASS.		(≤ 35% PASSING			5% PASSING		OR	GANIC MATERI	ALS			RTZ, FELDSPAR, MICA			CRYSTALLINE ROCK (CR)	CRYSTALLINE ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROU GNEISS, GABBRO, SCHIST, ETC.						
GROUP	A-1	A-3	A-2	A-4	A-5 A-		A-1, A-2	A-4, A-5		ARE USED IN		HEN THEY ARE CONS		GNIFICANCE.				GRAIN METAMORPHIC AND NON-COASTA				
CLASS.	A-1-a A-1-b	b A-2-4 A	-2-5 A-2-6 A-2-			A-7-5. A-7-6	A-3	A-6, A-7		2 01.101	HTLY COMPRESSIBL	MPRESSIBILITY			NON-CRYSTAL ROCK (NCR)		SEDIMENTARY ROOM	CK THAT WOULD YEILD SPT REFUSAL 1 IDES PHYLLITE, SLATE, SANDSTONE, ETC				
SYMBOL G					A.7.A					MODE	RATELY COMPRESS	SIBLE	LL < 31 LL = 31		COASTAL PLA		COASTAL PLAIN S	EDIMENTS CEMENTED INTO ROCK, BUT				
% PASSING								SILT-		HIGHL	Y COMPRESSIBLE		LL > 50		SEDIMENTARY (CP)		SPT REFUSAL. RC SHELL BEDS. ETC.	ICK TYPE INCLUDES LIMESTONE, SANDS				
	50 MX 30 MX 50 M)	IX 51 MN					GRANULAR SOILS	CLAY	MUCK, PEAT			TAGE OF MATE			_		WEAT	HERING				
		IX 10 MX 35 MX 3	5 MX 35 MX 35 M	IX 36 MN	36 MN 36	MN 36 MN		SOILS		ORGANIC MATERIAL	GRANULA SOILS	SOILS		R MATERIAL	FRESH			NTS MAY SHOW SLIGHT STAINING. ROCK				
MATERIAL										TRACE OF ORGANIC MA			TRACE	1 - 10% 10 - 20%		HAMMER IF CRYS						
PASSING #40 LL	-	- 40 MX 4	1 MN 40 MX 41 M	N 40 MX	41 MN 40	MX 41 MN	SOILS			MODERATELY ORGANIC	5 - 10%	. 12 - 20%	SOME	20 - 35%	VERY SLIGHT (V SLI.)), SOME JOINTS MAY SHOW THIN CLAY CO SHINE BRIGHTLY, ROCK RINGS UNDER HA				
PI	6 MX	NP 10 MX 10) MX 11 MN 11 M	N 10 MX	10 MX 11	MN 11 MN	LITTL MODE		HIGHLY ORGANIC	HIGHLY ORGANIC	> 10%	> 20%	HIGHLY	35% AND ABOVE	-	OF A CRYSTALLI						
GROUP INDEX	Ø	0 0	4 MX	8 MX	12 MX 16	MX NO MX	amoun Orgi		SOILS		GH	ROUND WATER			SLIGHT) AND DISCOLORATION EXTENDS INTO RO				
USUAL TYPES S OF MAJOR	STONE FRAGS GRAVEL, AND		Y OR CLAYEY	SIL	TY	CLAYEY	MAT			∇	WATER LEVEL I	IN BORE HOLE IMMED	DIATELY AFTE	R DRILLING	(SL1.)			. IN GRANITOID ROCKS SOME OCCASIONAL RYSTALLINE ROCKS RING UNDER HAMMER				
MATERIALS	SAND	SAND GRA	/EL AND SAND	SOIL	.s	SOILS				▼	STATIC WATER	LEVEL AFTER 24	HOURS		MODERATE			ISCOLORATION AND WEATHERING EFFECTS				
GEN. RATING		EXCELLENT TO C	:000		FAIR TO PO	nne	FAIR TO	POOR	UNSUITABLE	<u> </u>	PERCHED WATEF	R, SATURATED ZONE,	OR WATER BE	ARING STRATA	(MOD.)			DULL AND DISCOLORED, SOME SHOW CLA' SHOWS SIGNIFICANT LOSS OF STRENGTH				
AS SUBGRADE							POOR	1 OON	ONSOLITABLE		SPRING OR SEE	P				WITH FRESH ROCK.						
		PI OF A-7-5 SUB					> LL - 30				MICCEL				MODERATELY			OR STAINED. IN GRANITOID ROCKS, ALL F				
			<u>NSISTENC</u>		DENSI		PANO	E OF UNC		<u> </u>	MISCELI	LANEOUS SYME	BULS		SEVERE (MOD. SEV.)			KAOLINIZATION, ROCK SHOWS SEVERE LO IST'S PICK, ROCK GIVES "CLUNK" SOUND W				
PRIMARY S	SOIL TYPE	COMPACT CONSIS	NESS OR		RATION RE	SISTENCE		RESSIVE S	TRENGTH	C ROADWAY EMB		25/025 DIP & DIP D					<u>D YIELD SPT REFUSAL</u>					
					(N-VALUE	E)	_	(TONS/FT	-)				RUCTURES		SEVERE (SEV.)			OR STAINED. ROCK FABRIC CLEAR AND E IN GRANITOID ROCKS ALL FELDSPARS A				
GENERAL			LOOSE DSE		< 4 4 TO 1	Ø				SOIL SYMBOL			BORING	SLOPE INDICATOR		TO SOME EXTEN	T. SOME FRAGMENTS OF	STRONG ROCK USUALLY REMAIN.				
GRANULA MATERIA			DENSE NSE		10 TO 3 30 TO 5			N/A			ILL (AF) OTHER		NG 🙆	CONE PENETROMETER			<u>D YIELD SPT N VALUES</u>					
(NON-CO	HESIVE)		DENSE		> 50	56				THAN ROADWAY	Y EMBANKMENT			TEST	VERY SEVERE			OR STAINED. ROCK FABRIC ELEMENTS AR SOIL STATUS, WITH ONLY FRAGMENTS OF				
		VERY			< 2			< 0.25		- INFERRED SOI	L BOUNDARY -	- CORE BORING	G 🔶	SOUNDING ROD	(V SEV.))F ROCK WEATHERED TO A DEGREE THAT MAIN. <u>IF TESTED, WOULD YIELD SPT N V</u>				
GENERAL SILT-CL			IFT I STIFF		2 TO 4 4 TO 8			0.25 TO 0		INFERRED ROC	K I INF			TEST BORING	COMPLETE			OT DISCERNIBLE. OR DISCERNIBLE ONLY				
MATERIA	AL	ST	IFF		8 TO 1	5		1 TO 2					Y	WITH CORE		SCATTERED CON	CENTRATIONS. QUARTZ MA	AY BE PRESENT AS DIKES OR STRINGERS				
(COHESI	VE)		STIFF		15 TO 3 > 30	30		2 TO 4 > 4	•	ALLUVIAL SOI	L BOUNDARY		DN C	- SPT N-VALUE		ALSO AN EXAMPL						
		1	EXTURE	OR GF	AIN S	SIZE					RECOMM	ENDATION SYM	1BOLS					HARDNESS				
U.S. STD. SIE	EVE SIZE		4 10	40	60	200	270					D EXCAVATION -		SSIFIED EXCAVATION -	VERY HARD		AICHED BY KNIFE OR SH BLOWS OF THE GEOLOGIS	ARP PICK. BREAKING OF HAND SPECIMENS T'S PICK.				
OPENING (M	M)		4.76 2.00	0.42		5 0.075	0.053							TABLE, BUT NOT TO BE IN THE TOP 3 FEET OF	HARD			NLY WITH DIFFICULTY. HARD HAMMER BL				
BOULDE			RAVEL	COARS SAND		F INE SAND		SILT	CLAY			D EXCAVATION - DEGRADABLE ROCK	EMBAN	KMENT OR BACKFILL	NODEDATELY	TO DETACH HANE						
(BLDR.)		(COB.)	(GR.)	(CSE, S		(F SD.		(SL.)	(CL.)		AB	BREVIATIONS			MODERATELY HARD			GOUGES OR GROOVES TO 0.25 INCHES DE SIST'S PICK. HAND SPECIMENS CAN BE DE				
GRAIN MM		75	2.0		0.25	5	0.05	0.005		AR - AUGER REFUSAL		D MEDIUM		- VANE SHEAR TEST		BY MODERATE BU						
SIZE IN.		3								BT - BORING TERMINATED CL CLAY		CA MICACEOUS D MODERATELY	γ-	- WEATHERED UNIT WEIGHT	MEDIUM HARD			S DEEP BY FIRM PRESSURE OF KNIFE OF PEICES 1 INCH MAXIMUM SIZE BY HARD				
		SOIL MOIS				IN OF	TERMS			CPT - CONE PENETRATION CSE COARSE		- NON PLASTIC 5 ORGANIC		DRY UNIT WEIGHT		POINT OF A GEO						
	MOISTURE		FIELD MO DESCRI		GUI	IDE FOR F	IELD MOI	STURE DES	CRIPTION	DMT - DILATOMETER TES		T - PRESSUREMETER	TEST <u>S</u>	AMPLE ABBREVIATIONS	SOFT			KNIFE OR PICK. CAN BE EXCAVATED IN E BY MODERATE BLOWS OF A PICK POIN				
			- SATURA	TED -				WET, USU		DPT - DYNAMIC PENETRAT		P SAPROLITIC		BULK			BROKEN BY FINGER PRES					
			(SAT.					UND WATE		e - VOID RATIO F - FINE		- SAND, SANDY - SILT, SILTY		SPLIT SPOON SHELBY TUBE	VERY SOFT			CAVATED READILY WITH POINT OF PICK. BY FINGER PRESSURE, CAN BE SCRATCH				
		D LIMIT								FOSS FOSSILIFEROUS		- SLIGHTLY		ROCK	SUFT	FINGERNAIL.	UKNESS LAN BE BRUKEN	BT FINGER PRESSURE. LAN BE SCRATCH				
RANGE <			- WET -	(W)			EOUIRES I MUM MOIS	DRYING TO		FRAC FRACTURED, FRAC FRAGS FRAGMENTS		R - TRICONE REFUSA - MOISTURE CONTENT		- CALIFORNIA BEARING	F	RACTURE S	SPACING	BEDDING				
(PI) PL		TIC LIMIT								HI HIGHLY	v -	VERY		RATIO	TERM		SPACING	TERM				
	ODTIN	NUM MOISTURE	- MOIST	- (M)	SO	LID; AT OF	R NEAR OF	тімим мо	ISTURE			ED ON SUBJE			VERY WIDE	. М	10RE THAN 10 FEET 3 TO 10 FEET	VERY THICKLY BEDDED THICKLY BEDDED 1.				
		WAGE LIMIT								DRILL UNITS:	ADVANCING TOOL		HAMMER	_	MODERATE	_Y CLOSE	1 TO 3 FEET	THINLY BEDDED 0.1				
			- DRY -	(D)				WATER TO)	CME-45C	CLAY BITS				CLOSE VERY CLO	SE LF	0.16 TO 1 FOOT ESS THAN 0.16 FEET	VERY THINLY BEDDED 0.03 THICKLY LAMINATED 0.00				
			000		AT	TAIN OPTI	MUM MOIS	TURE		CME-55		JOUS FLIGHT AUGER	CORE SI	_				THINLY LAMINATED <				
			PLA	STICI	ΤY						8" HOLLOW		□-в _	Ц-н				RATION				
1			PLAST	CITY IN	<u>JEX (PI)</u>		DF	RY STRENG		CME-550		ED FINGER BITS	-N _		FOR SEDIMEN	ARY ROCKS, IND		NING OF MATERIAL BY CEMENTING, HE				
	I PLASTIC GHTLY PL4			Ø-5 6-15				VERY LOW SLIGHT		VANE SHEAR TEST		BIDE INSERTS	HAND TO	0LS:	FRIABL	.E		BY HAMMER DISINTEGRATES SAMPLE.				
MOD	DERATELY	PLASTIC	_	16-25				MEDIUM				W/ ADVANCER		ST HOLE DIGGER	HODED	ATELY INDURATE		BE SEPARATED FROM SAMPLE WITH ST				
HIGH	HLY PLAST	11L		6 OR MO				HIGH		PORTABLE HOIST	X TRICONE	25% STEEL TEET	гн 🗍 не	ND AUGER	MUDER	TILLI INDURATE		Y WHEN HIT WITH HAMMER.				
			(COLOR						X DIEDRICH D-50		"TUNGCARB.	· 🗍 so	UNDING ROD	INDUR	TED		DIFFICULT TO SEPARATE WITH STEEL I BREAK WITH HAMMER.				
											CORE BIT		V4	NE SHEAR TEST				R BLOWS REQUIRED TO BREAK SAMPLE				
MO	DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.								🗆		_ 🗆 _		EXTRE	MELY INDURATED		KS ACROSS GRAINS.						

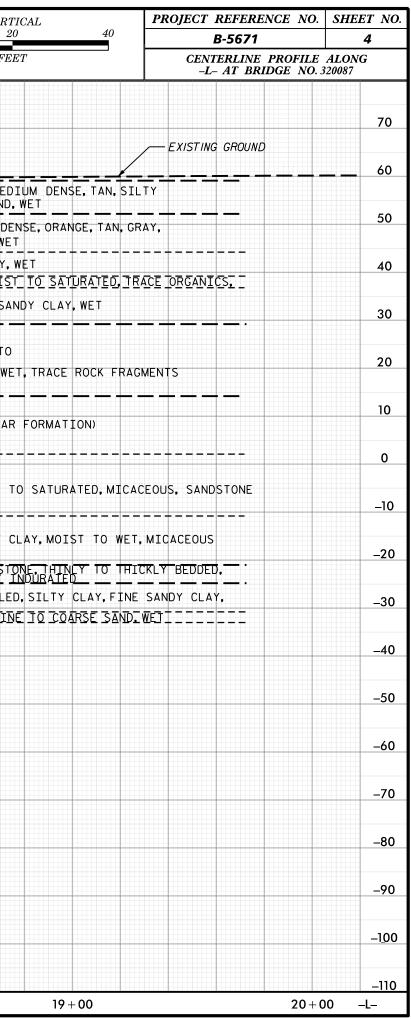




	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
IFOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
N VALUES >	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
OCK THAT	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
CLUDES GRANITE,	SUMPHEE. CALCAREOUS (CALC,) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN IF TESTED. C.	<u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
MAY NOT YIELD STONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
RINGS UNDER	<u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
OATINGS IF OPEN.	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
ICK UP TO L FELDSPAR R BLOWS.	<u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
Y. ROCK HAS A AS COMPARED	PARENT MATERIAL.
HS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
ELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
OSS OF STRENGTH WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
VIDENT BUT ARE KAOLINIZED	ITS LATERAL EXTENT.
	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
RE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
ONLY MINOR ALUES < 100 BPF	OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
5. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
S REQUIRES	<u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
LOWS REQUIRED	<u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE ETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
OR PICK POINT. BLOWS OF THE	A 140 LB.HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1FOOT PER 60 BLOWS.
FRAGMENTS IT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
PIECES 1 INCH ED READILY BY	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO ON GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
TUTOWIECO	BENCH MARK: BM#2: -L- STA. 16+20.11, 49.7' RT, RR SPIKE IN
THICKNESS 4 FEET	BASE OF 15" ASH, N: 814,646; E: 2,415,932
.5 - 4 FEET 16 - 1.5 FEET	ELEVATION: 48.88 FEET
3 - Ø.16 FEET	NOTES:
08 - 0.03 FEET 0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
AT, PRESSURE, ETC.	
EEL PROBE:	
PROBE;	



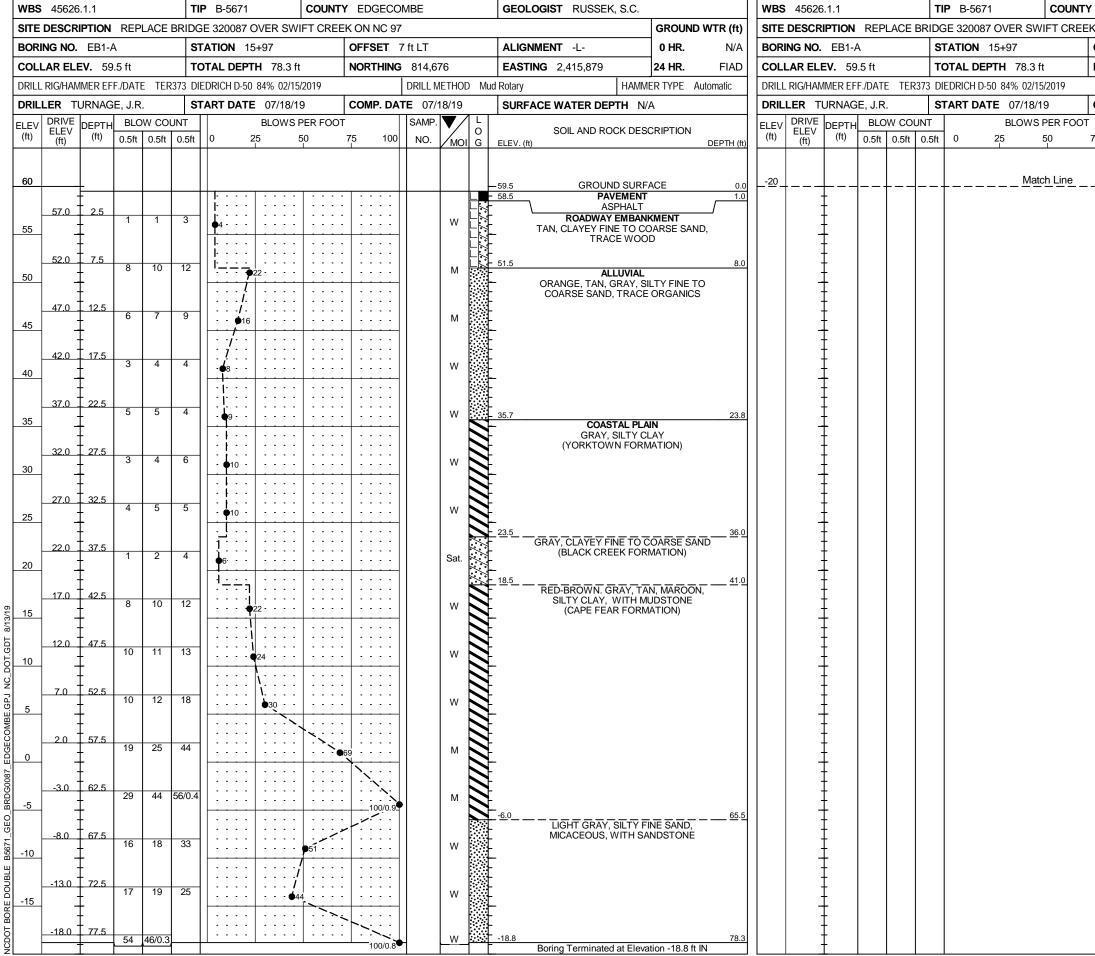
	NOTE: INFERRED STRATIGRAPH	IY IS DRAWN THROUGH THE I		CTED		0 HORIZONTAL 0 40	80 0	VERT 20
	ON TO THE EXISTING GR	OUND PROFILE ALONG THE C	ENTERLINE OF -L- TAKEN FI			FEET		FE
80		TIN FILE (B5671_Is_tnl.tin) DA					VE = 2	
70		EB1-A					EB2-B	
60	PAVEMENT - (ASPHALT)	15+97 - 7' LT				1	7+99.00 -L- 7' RT (ASPHAL T)	
00	ROADWAY EMBANKMEN CLAYEY FI	NT. LOOSE, TAN, O	2 \			21	ROADWAY EMBANKME FINE TO COARS	ENT, MED
50 -	<u></u> <u> SANU, WE</u>	L. IRÁCE WOOD 22	`\ 	EL. 4'	B1-B 17+00 -L-		ALLUVIAL, MED	DIUM DE
40	ALLUVIAL, VERY LOOSE TRACE GRAVEL, TRACE WOOL	TO MEDIUM	DENSE, ORANGE, TAN, GRAY		9' RT			Y CLAY,
30		PLAIN, STIFF.	VERY SOFT, BLUE	Y, SILTY ()	FINE_T	O COARSE SAND 5	VERY SOFT GRAY F	
		N FORMATION		-GRAY, FINE TRACE	SANDY ORGANI	CLAY, WET,		
20	LOOSE. GRAY. CLAYEY FINE TO	COARSE SAND 6	(BLACK CREEK FORMATI		MEDIU	M DENSE, GRAY, SILTY)— FINE TO COARSE S	
10	COASTAL PLAIN, VERY STI		ED-BROWN. GRAY, TAN, M	27		Y CLAY, MOIST TO		
0	CUASTAL PLAIN, VERT STI	30- (69-	CD-BROWN, GRAT, TAN, N	(56				
				30		(2)		D.WET T
_10	MEDIUM DENSE TO VERY	DENSE, TAN,	LIGHT GRAY, GRAY, S	SILTY (22) (28)		TO COARSE SAND,		
-20		(100/0.8) BT		52	<u></u>	GRAY, TAN, MOTTLED.	SILTY CLAY, FINE S	SANDY C
-30		FIAD 07/19	STIFF TO HARD, E	BROWN, (47) (40)		TO IMENTARY - 5	BT	ATELY I
			====			TEF TO HARD, BROWN	DENSEL MARDON, CLAS	YEY_FIN
-40			COASTAL F	PLAIN, (52))- VERY S			
-50			MOIST T	0 WET.		EOUS		
-60				(23)				
			DENSE, TAN, BLUE	GRAY, WET, <u>33</u>		FINE TO COARSE		
-70			HARD, MAROON	(35 , TAN, (36		SILTY CLAY.		
-80			м	0IST, <u>39</u>		EOUS		
-90			DENSE TO VERY DE	(51) NSE, (50)) BLUE-C	 RAY,CLAYEY FINE		
			TO COARSE S	AND, (46)	BT WET, M	ICACEOUS		
-100					N/A 07/19			
_110								





GEOTECHNICAL BORING REPORT

BORE LOG



SHEET 5 OF 8

EDGECON	/IBE				GEOLOGIST RUSSEK,	S.C.		
ON NC 97							GROUN	ID WTR (ft)
OFFSET 7	ft LT				ALIGNMENT -L-		0 HR.	N/A
NORTHING		76		-	EASTING 2,415,879		24 HR.	FIAD
	DRILL M) N <i>I</i> II		1			Automatic
				_				nuiomailt
COMP. DAT	-		L	1	SURFACE WATER DEPT	IN/A	۹	
75 100	SAMP.		0		SOIL AND ROC	K DESC	RIPTION	I
75 100	NO.	/моі	G	-				
	L	$\lfloor - \rfloor$		L	COASTAL PLAIN	<u> </u>		<u>––––</u>
				F	COASTAL PLAIN (CAPE FEAR	FORMA	ATION)	U
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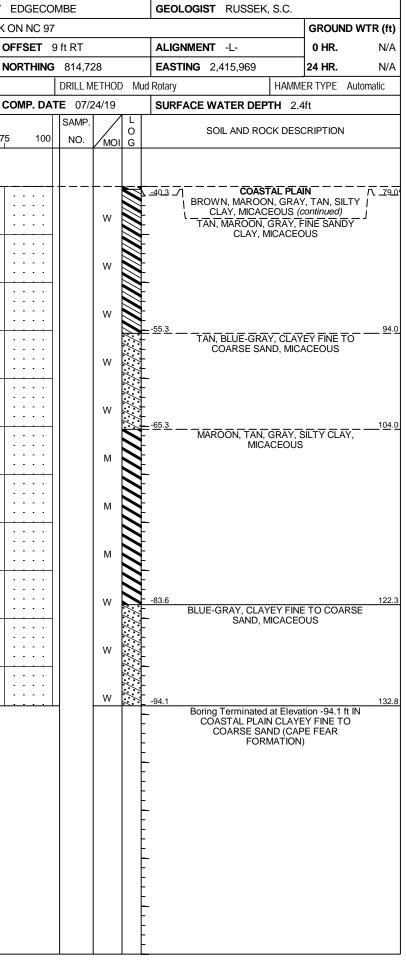


GEOTECHNICAL BORING REPORT

BORE LOG

		-										LUG				1													
WBS	45626	6.1.1			٦	TIP B-5	5671		COL	JNTY	EDGEC	OMBE				GEOLOGIS	T RUSSEK, S.C			WBS	45626	6.1.1			TI	P B-5671		COUNT	YE
SITE	DESCR	IPTION	REF	PLACE	BRID	GE 320	0087 C	OVER S	WIFT C	REE	K ON NC	97				·		GRC	OUND WTR (ft)	SITE	DESCR	IPTION	REP	LACE	BRIDG	GE 320087	OVER SW	/IFT CRE	
BOR	ing no.	B1-B			5	STATIO	N 17	'+ 00			OFFSET	9 ft RT	-			ALIGNMEN	T -L-	0 H	IR. N/A	BORI	NG NO.	B1-B			S	TATION 1	7+00		OF
COL	LAR ELE	EV. 38	8.7 ft		1	OTAL	DEPT	H 132	2.8 ft		NORTHIN	IG 814	,728			EASTING	2,415,969	24 H	IR. N/A	COLI	AR EL	EV. 38	3.7 ft		т	OTAL DEP	TH 132.8	3 ft	NC
DRILI	_ RIG/HAN	/MER EF	F./DAT	e ter	R373 E	DIEDRICH	HD-50	84% 02	2/15/2019			DRILL	METI	HOD	Mu	Rotary	HAN	MMER TYP	PE Automatic	DRILL	. RIG/HAN	/MER EF	F./DAT	e ter	373 DI	EDRICH D-50) 84% 02/1	5/2019	
DRIL	LER T	URNAG	E, J.F	R.	5	START	DATE	07/19	9/19		COMP. D	ATE 0	7/24/*	19		SURFACE V	VATER DEPTH	2.4ft		DRIL	LER T	URNAG	E, J.R		S	TART DAT	E 07/19/′	19	CC
ELEV	DRIVE	DEPTH	BLC	ow co	UNT			BLOW	/S PER F	TOOT		SAM	IP. 🔻		L O		SOIL AND ROCK DI	ESCRIPT		ELEV	DRIVE	DEPTH	BLC	W CO	UNT		BLOWS	PER FOO	T
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	2	25	50		75 10	00 NO). /r	MOI	G	ELEV. (ft)	SOIL AND ROCK DI	ESCRIPT	DEPTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75
														_															
40													\square		- -		WATER SURFACE	E (07/19/1	<u>19)</u>	-40							Mat	tch Line	
	38.0	+ - 0.7-						1								38.7	GROUND SU		0.0			+					· . / .		
		+ <u>0.7</u>	1	0	1					· · ·			s	at.			ALLUVIA GRAY, TAN, SILTY		ND		-42.6	<u>† 81.3</u> †	9	11	16		27		
35		ŧ							· · ·	· · ·				••••		34.7			4.0	-45	-	‡					P 27		· ·
	32.6 -	+ 6.1				::		· · ·		· · ·				0/0	\sim	GF	AY, CLAYEY FINE WOOD		RACE		-176	+ 86.3					'		· ·
	-	‡	1	0	1	1			: .				S	at.	\sim	30.7			8.0	50		<u></u>	5	6	10	16	,		: :
30	-	ŧ														BLUE	-GRAY, FINE SANI ORGANI		, TRACE	-50	-	ŧ				$\left \frac{1}{1} + \frac{1}{2} \right $	+		<u> </u>
	27.4	11.3			1	↓ ∦∶∶									ł			00			-52.6	91.3		11	10	$ \cdots \rangle$			· ·
25	-	Ŧ		WOH	1	1							`	W	S					-55		Ŧ	9	11	12		Q 23		: :
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	22.4	16.3	1	2	6			· · · ·		· · ·				w		21.4			17.3		-57.6	96.3	10	13	17		<u>\</u>		: ;
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	-							· · ·	· · · ·							UIV-	TRACE ROCK FR					1				: : : : :	4	.	: :
	17.4	<u>† 21.3</u>	9	8	4		•12						v	w	-						-62.6	<u>† 101.3</u> 	12	14	19		33		. .
15	-	Ŧ						<u> </u>			+ • • • •			••••		14.7			<u>24.0</u>	-65	-	Ŧ					+	+	
	12.4	26.3					•••								N	MA	ROON, GRAY, TA	N, SILTY			-67.6	106.3					· · · ·		: :
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	7.4	31.3	9	14	18	41::	•••		· · ·						Y						-72.6	111.3	11	16	20				· ·
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	2.4	<u>† 36.3</u> †	15	19	37					· · ·			,	м	N						-77.6	<u>† 116.3</u> †	12	17	22				
0		‡								6						-0.3			<u>39.0</u>	-80	-	‡					Q 39_		··
	26 -	+ - 41.3					•••		/. 	· · ·				° °/° °	\mathbf{i}	LIGH	T GRAY, TAN, CLA MICACEO		E SAND,		026	+ 121.3					· · · `		· ·
	-2.0	1 41.3 1	7	12	18	1 ::		9 30	: .				\	W %	\sim						-02.0	 	14	19	32			51	- -
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	-12.6	51.3	11	12	16			<u>\</u>		· · ·				at.	\geq	-12.7	N, LIGHT GRAY, S		51.4		-92.6	131.3	14	19	27			<u>i </u> :::	: ;
-15		ŧ						•28.						ai.	-	-	COARSE S					<u>+</u>					<u> </u>	46	<u> </u>
	-	±					•••		<u>.</u>													ŧ							
	-17.6	<u>† 56.3</u>	16	21	31								l r	м	t							ŧ							
-20		Ŧ							- j							-20.3			<u>59.0</u>		-	Ŧ							
	-22.6	+ - 61.3					•••		·/ · ·	· · ·					Ì	(GRAY, TAN, FINE S	SANDY CI				Ŧ							
-25		‡	15	20	27	::			• 47	· · ·			1	м	Ì							‡							
-20	-	‡							1						Ì	- <u>25.3</u> BRO	WN, MAROON, GF		N, SILTY 64.0			‡							
	-27.6	66.3	19	14	26	41::	•••		/: ::	· · ·			.	, F	Y		CLAY, MICAC					‡							
-30	-	£	'9	'4	20			<u> </u>	40		 			м	3	_						t							
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-35		‡		1					· · · ·		100/0	8			4	:- <u>-34.0</u>	Y. MAROON. MUD	STONE.	THINLY r- 13.3			‡							
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	-37.6	<u>† 76.3</u>	23	24	28				• • 52				r	м	7	\		· _′ ·	/			ŧ							
-40		Ē		I					/						N							Ľ				i			

SHEET 6 OF 8



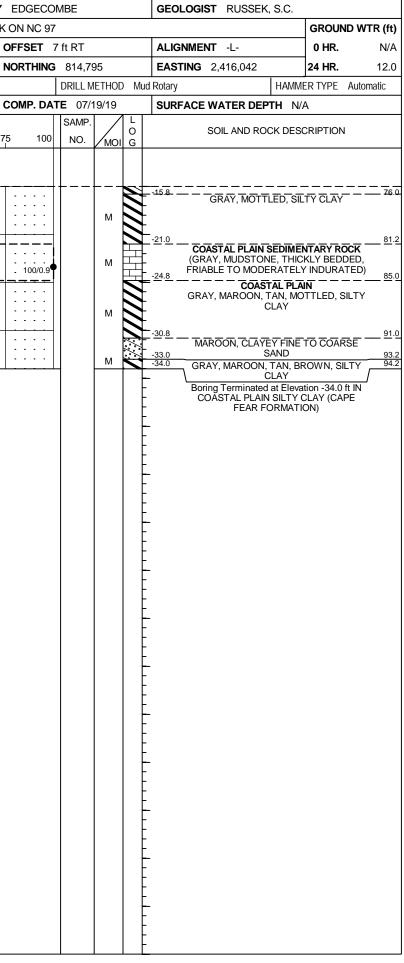


GEOTECHNICAL BORING REPORT

BORE LOG

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	45626					P B-5671					DE .			GEOLOGIST RUSSEK,			45626			AOF		P B-5671			
	ING NO.			LACE		E 320087 (ъ			ALIGNMENT -L-	GROUND WTR (ft) 0 HR. N/A		ING NO.					E 320087 (ATION 1	OVER SWI		
					_			r,						-							_				0
									NORTH				<u> </u>	EASTING 2,416,042	24 HR. 12.0					. TED			TH 94.2 ft		Ν
						EDRICH D-50			COMP.				JIVIL	,	HAMMER TYPE Automatic) 84% 02/15/		С
		DEPTH		 W CO				PER FOOT			SAMP.		1 L I	SURFACE WATER DEPT	H N/A					w col			E 07/18/19	PER FOOT	
ELEV (ft)	ELEV (ft)	(ft)		0.5ft		0 2		50			NO.	моі	0	SOIL AND ROC	K DESCRIPTION DEPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft			0 :			75
	(,												0				(,								
65																-15							Mate	h Line	
05		‡												_		-15	+	+	+		+	·			Τ
		‡															-17.5	<u>+ 77.7</u>	11	11	18		• • • • • • • • • • • • • • • • • • •		
60		<u>†</u>					11								SURFACE 0.0 MENT 1.1	-20		‡					,2 <u>9</u>		_
	57.5	+ 2.7							· · · · · · · ·	-				ASP	HALT /		-22.5	82.7					L	+	1
55		‡	3	10	17	· · · ·	\$ 27		· · · · · · · ·	•		W			MBANKMENT TO COARSE SAND	-25	-	ţ	50	50/0.4					
55	-	‡												<u> </u>		-25	-	ŧ						<u> </u>	+
	52.5	<u>+ 7.7</u>	9	7	9		.:::i		· · · ·	·		W		52.2	8.0		-27.5	87.7	21	27	30			-	
50	· ·	ŧ								·		••			AY, SILTY FINE SAND	-30		ŧ							
	47.5	+ + 12.7							- -	•	-	V	-				-32.5	- 92.7				· · · · ·		1.1.1	
45		+	6	8	8	16			. .			W							14	25	38			• • • • • • • • • • • • • • • • • • •	
45	-	‡				· / · ·									SANDY CLAY 16.0			ŧ							
	42.5	+ 17.7	 Iwoн	WOH	3	1			. .	:		W		. GRAT, FINE	SANDICLAT		-	ŧ							
40		ŧ				•3 1				·		vv			21.0		-	ŧ							
	37.5	+ 22.7							. .	·				GRAY, SILTY COA	RSE SAND, TRACE		-	ŧ							
0.5		+	1	2	3	9 5			. .	:		W			AVEL <u>23.4</u> SANDY CLAY <u>23.4</u>		-	ŧ							
35	-	ŧ				$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ \end{array}$	· · · ·										-	ŧ							
	32.5	27.7	 woн	WOH	woн	<u>i</u> :::::			. .	·		w					-	ŧ							
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	27.5	+ 32.7								•					OASTAL PLAIN 31.0		-	ŧ							
		- 32.7	5	6	6	• 12			· · · ·			W		LIGHT GRAY, S	ILTY FINE SAND		-	ŧ							
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Lo 15	-	Ŧ							· · · ·					14.2	46.0		-	ŧ							
NC	12.5	47.7	5	10	15					:				TAN, GRAY	AL PLAIN , SILTY CLAY FORMATION)		-	ł							
EDGECOMBE.GPJ		Ŧ				'	Q25			-		W	\mathbb{N}	(CAPE FEAR	FORMATION)		-	Ł							
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BORE DOUBLE	-	‡				1 /	+ • • • •	+ • • • •							SANDY CLAY 71.0			‡							
Ы	-12.5	+ 72.7 +	4	5	9				· · · ·	:		W					-	‡							
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SHEET 7 OF 8



SITE PHOTOGRAPHS

REPLACE BRIDGE NO. 320087 OVER SWIFT CREEK ON NC 97



LOOKING EAST FROM END BENT 1 TOWARD END BENT 2



SOUTHEAST OF BRIDGE LOOKING NORTHWEST

	PROJECT	REFERENCE NO.	SHEET NO.
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